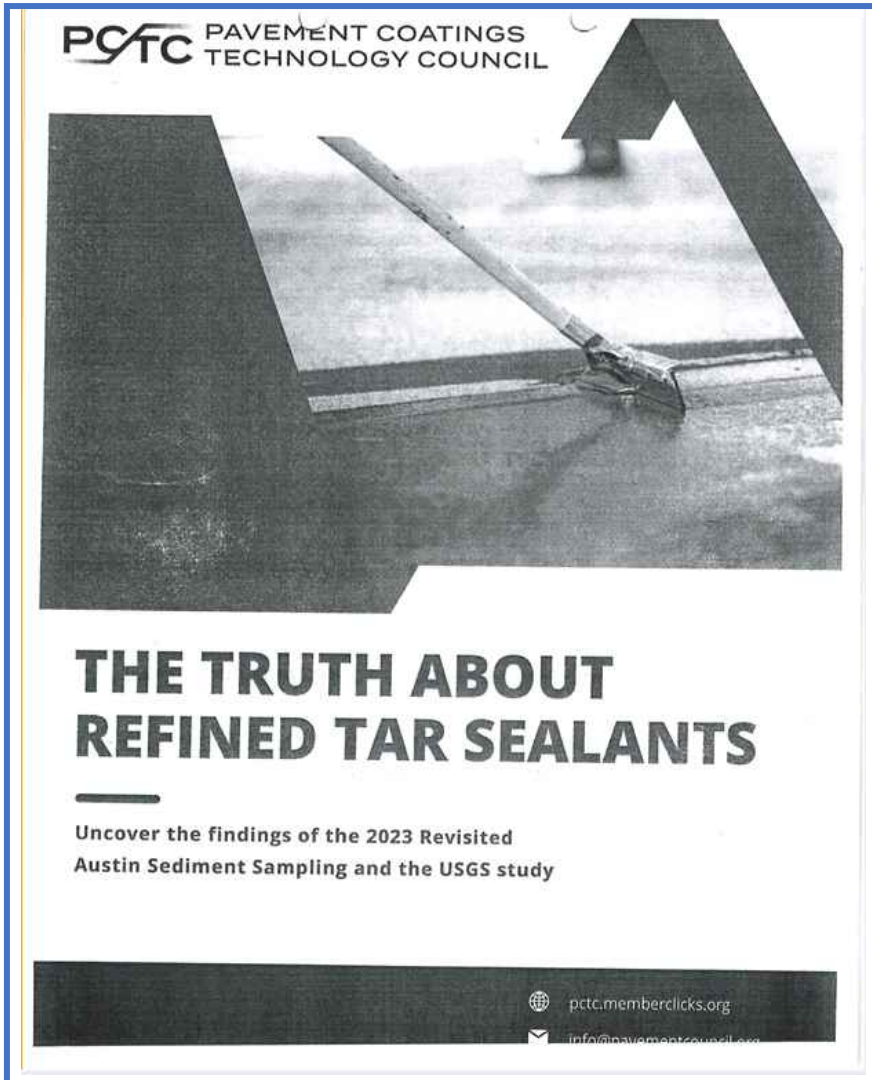

PCTC PAVEMENT COATINGS TECHNOLOGY COUNCIL
THE TRUTH ABOUT REFINED TAR SEALANTS
Uncover the findings of the 2023 Revisited Austin Sediment Sampling and the USGS study
pctc.memberclicks.org

COAL TAR FREE AMERICA'S RESPONSE TO INDUSTRY'S "~~TRUTH~~" PIECE

Coal Tar FREE AMERICA

As you read this review, ask the following:

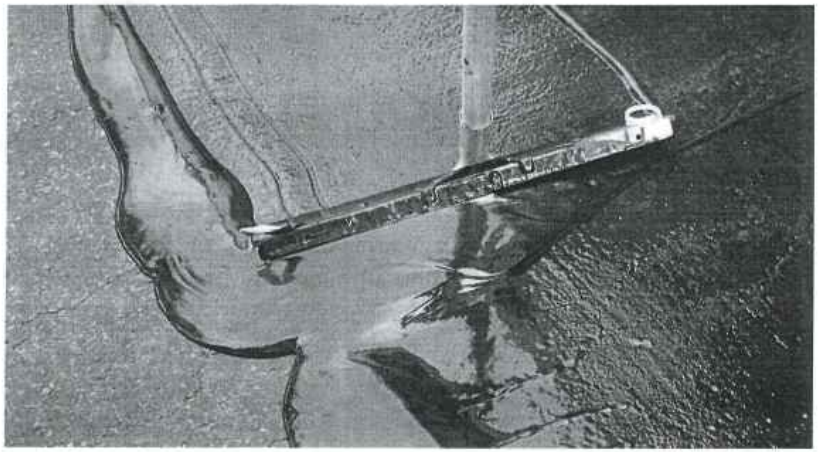
1. Who authored the work? What potential bias could they bring?

2. Have the observations been peer-reviewed and published?

3. Distractions. Ask yourself this: does this point represent the core issue or a fringe argument?

4.Does it involve mind reading of the intent of others?

Background 1



In 2003, the Pavement Coatings Technology Council funded two independent studies to evaluate two significant pieces of research used throughout the United States to potentially justify bans against refined tar sealants. However, the findings of our research contained within this booklet tell a different story.

Here industry makes a major mind-reading assumption or perhaps a distraction argument: that coal tar bans across the country were based upon modeling studies of sealers' entire contribution to pollutants in a watershed.

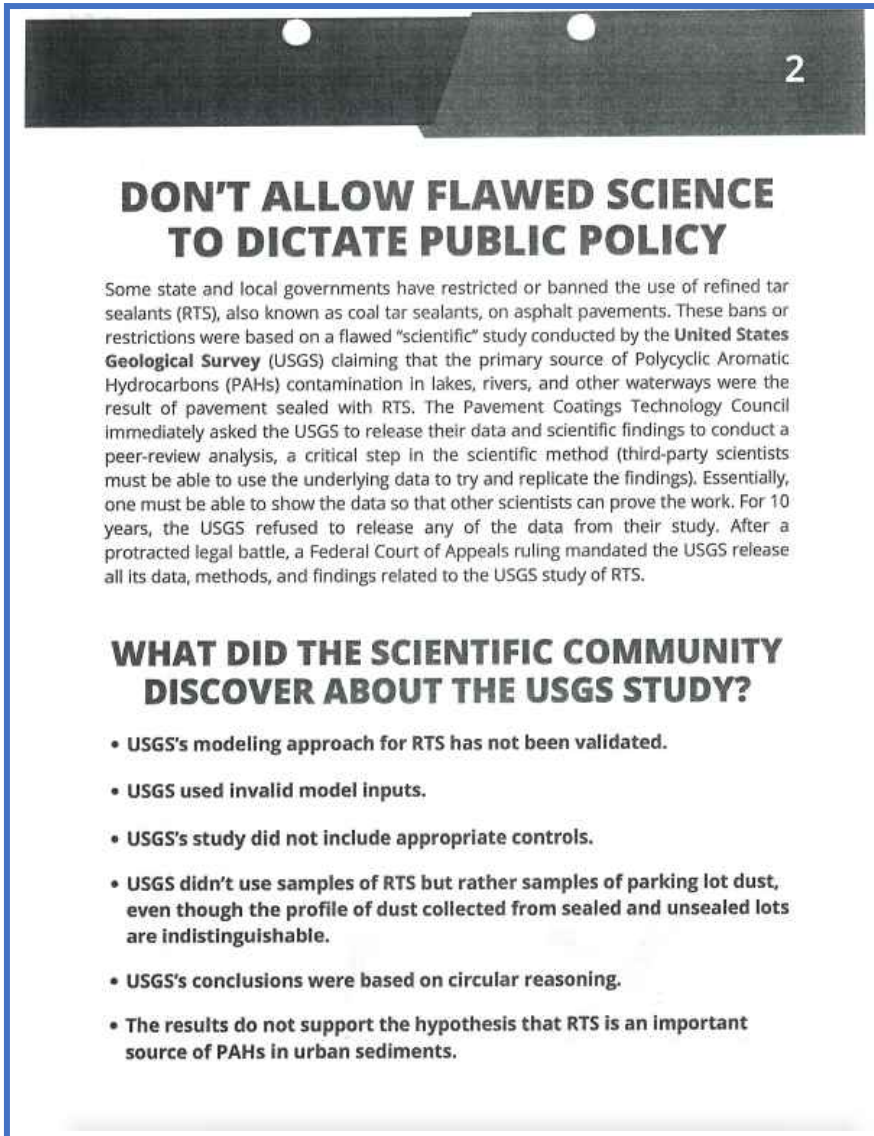
This is FALSE.

Even in 2005, there was sufficient evidence from the USGS, the State of Texas, and the City of Austin[i] in the areas of:

- toxicity of the products,
- the mobility of the products over time,
- their effects on aquatic species.

Austin's ban was NOT about the overall contribution of coal tar sealers to any watershed[ii]. It was about a controllable source of pollution that was potent enough to degrade streams.

By the way, industry-funded research is NOT "independent" by definition and may be biased toward the paying customer.



2

DON'T ALLOW FLAWED SCIENCE TO DICTATE PUBLIC POLICY

Some state and local governments have restricted or banned the use of refined tar sealants (RTS), also known as coal tar sealants, on asphalt pavements. These bans or restrictions were based on a flawed "scientific" study conducted by the **United States Geological Survey** (USGS) claiming that the primary source of Polycyclic Aromatic Hydrocarbons (PAHs) contamination in lakes, rivers, and other waterways were the result of pavement sealed with RTS. The Pavement Coatings Technology Council immediately asked the USGS to release their data and scientific findings to conduct a peer-review analysis, a critical step in the scientific method (third-party scientists must be able to use the underlying data to try and replicate the findings). Essentially, one must be able to show the data so that other scientists can prove the work. For 10 years, the USGS refused to release any of the data from their study. After a protracted legal battle, a Federal Court of Appeals ruling mandated the USGS release all its data, methods, and findings related to the USGS study of RTS.

WHAT DID THE SCIENTIFIC COMMUNITY DISCOVER ABOUT THE USGS STUDY?

- **USGS's modeling approach for RTS has not been validated.**
- **USGS used invalid model inputs.**
- **USGS's study did not include appropriate controls.**
- **USGS didn't use samples of RTS but rather samples of parking lot dust, even though the profile of dust collected from sealed and unsealed lots are indistinguishable.**
- **USGS's conclusions were based on circular reasoning.**
- **The results do not support the hypothesis that RTS is an important source of PAHs in urban sediments.**

They continue to build on this "strawman" argument without ever publishing data about their own products. This is a classic strategy frequently made by industry: others' studies are deemed flawed, but they don't study their own products.

While this protracted battle continued, dozens of truly independent researchers found the same thing: these sealers are a potent source of pollution. A list of nearly 50 institutions is included at the end of this document. What do they all have in common? They all find problems with coal tar and high PAH pavement products.

No institution in the "scientific community," other than paid consultants, disagrees with the findings.

For a succinct list with references and major findings is included at this link:

https://archive.org/download/usgs-research-influence/USGS_research_influence.pdf

The State of Texas' own State environmental regulator, the TCEQ, found that there were "indisputable facts" that PAHs are pollutants, PAHs are in coal tar sealants, PAHs are polluting Austin's creeks and lakes, the State found a connection between sealers and stream pollution, and the State affirmed the City of Austin's ordinance banning coal sealers.[iii]

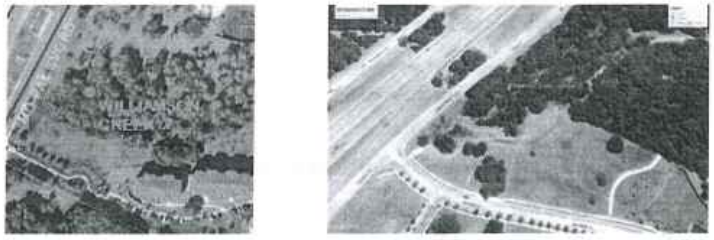
3

In layman's terms, the study conducted by USGS's scientists essentially put their thumb on the scale to reach a desired, albeit flawed, conclusion that RTS is a primary source of PAH contamination in lakes and other waterways. In fact, traffic-related emissions, not runoff from pavements sealed with RTS, are the primary source of all PAHs in the urban environment. PAHs from these sealants typically account for less than one half of a percent (0.4%) of what is found in the environment.

AUSTIN, TEXAS BAN CONFIRMS USGS STUDY IS FLAWED

The City of Austin, Texas enacted an ordinance in November 2005 prohibiting the use and sale of refined coal tar-based sealants. This ban occurred as a result of the USGS study, which failed to include other local sources of PAHs and even disregarded the four former manufactured gas plant (MGP) facilities located at and near the sites of PAH contamination.

The City of Austin undertook a retrospective study of PAHs in city sediments in 2012, looking back to monitoring data collected since the 1990s. The study found that PAH levels declined beginning in the late 1990s-early 2000s, and that neither the ban on refined coal tar-based sealants which went into effect in 2006 nor the closing of a fossil fuel-fired power plant in 2007 has had any detectable impact on PAH levels. This is consistent with the situation throughout the country—stricter controls on automobile and industrial emissions resulted in a nationwide decline in PAHs – not restrictions on RTS.

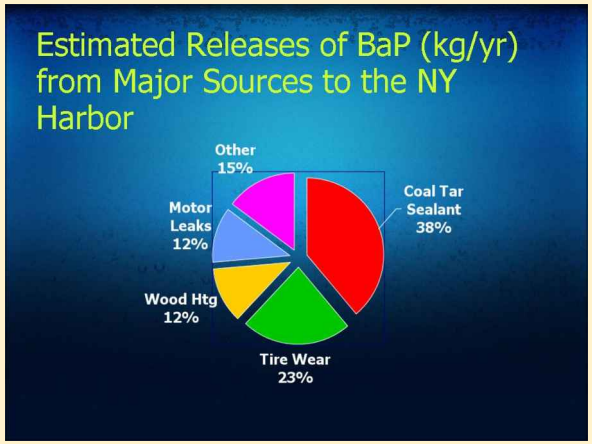


Images of the Williamson Creek testing site (L: 2005, R: 2023)

Nonetheless, researchers from the following institutions also found pollution from high PAH sealers to be a significant source of pollution at a watershed level:

- New York Academy of Sciences
- Minnesota Pollution Control Agency
- Dickinson University
- DuPage River/Salt Creek Working Group (Chicago)
- Milwaukee Metropolitan Sanitary District
- Missouri State University

This point also reveals deceptive language used by industry. Wherever combustion happens, PAHs are formed. However, many are quickly broken down in the environment. But what matters, are the heavy PAHs (like BaP) that are persistent in the environment and as some have found, like the New York Academy of Sciences (see below), that the majority of these more toxic, persistent PAHs come from pavement sealers.[iv]


Estimated Releases of BaP (kg/yr) from Major Sources to the NY Harbor
Other 15%
Coal Tar Sealant 38%
Motor Leaks 12%
Wood Htg 12%
Tire Wear 23%

Using this stream characteristic as a study design feature means that the results from the stream sediment samples evaluated by Ramboll reflect snapshots in time of conditions before, shortly after, and well after the ban. Samples in 2008 and 2023 were collected from the same locations along streams as in 2005, albeit reflecting recently deposited sediment not present at the preceding event.

Timepoint	Average (Sum of 16 EPA Priority PAHs)	Sample Size
Before (2005)	11.1-mg/kg	24 samples
Shortly After (2008)	17 mg/kg	20 samples
Well After (2023)	11.8 mg/kg	21 samples

The primary finding of the monitoring study is that sediment PAH concentrations have not changed notably since the ban.

IF COAL TAR SEALERS WERE THE CAUSE OF THE HIGH PAH LEVELS, WHY WAS THERE NO IMPROVEMENT OVER TIME?

According to a 2003 article in a local newspaper, the Austin Statesman, "The chemical fingerprint of the contamination at the hillside above Barton Springs pool and in the creek is identical to that of coal gasification wastes..." **Coal gasification wastes are found at Manufactured Gas Plant facilities. Manufactured Gas Plants all but ceased operations in the early to mid-1900's.**

A subsequent scientific review of the Austin studies "found that traffic-related emissions, not runoff from pavement sealed with refined coal tar-based sealer, is consistently identified as the primary source of PAHs in the urban environment."

What about the effects of the ban in Austin?

Industry has never been forthcoming about where the sealant goes after it leaves a parking. Once again they criticize other's studies but haven't produced meaningful information themselves.

Let's be clear. Both the City of Austin's study (2016) and the USGS' found decreasing trends of PAH's in streams and in the main reservoir (aka, "Lady Bird Lake") since the ban went into effect. Nine out of 13 sample locations decreased with 46% of those locations dropping down to below a level known to affect aquatic species. USGS found a 58% drop in 2014 in Lady Bird Lake.[v]

How could the concentrations remain high in these few areas?

- Half of the high areas are outside the City of Austin where there is no ban of coal tar sealers
- This product is known to be toxic in the environment for over 100 years
- Product usually wears from parking lots slowly
- Stormwater ponds may continue to be a source of pollution with intense storms.

The City published this report in 2016 and it is publicly available at: https://services.austintexas.gov/watershed_protection/publications/document.cfm?id=276630

In sharp contrast, the industry's report is not public or transparent. Their "analysis" involved doing some sampling and then calculating a meaningless average.

5

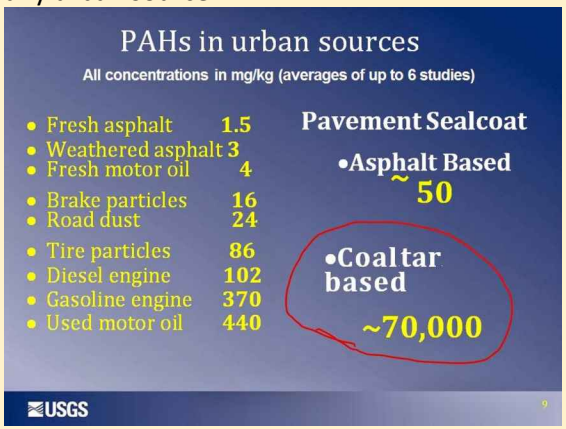
MORE ON PAHS & RTS/COAL TAR SEALANTS

PAHs are a group of more than 100 chemical compounds which are everywhere in the environment in such diverse sources as: auto exhaust, motor oil, industrial processes, electric power generation, wood and yard waste burning, and even barbeque grilling. PAHs from RTS pavement sealants typically account for less than one half of a percent (0.4%) of what is found in the environment.

- No federal or state regulatory agencies including the USEPA and OSHA have taken steps to ban the use of coal tar pavement sealants—**in fact, refined coal tar pavement sealant is not, nor has it ever been, classified as a hazardous material by the USEPA and is not listed on California's Prop 65.**
- **In addition, just before the end of the Obama Administration, the USEPA reevaluated Coal Tar and lowered the risk from the product by a factor of 7-fold.**
- The IARC (International Agency for Research on Cancer) has not classified refined tar or refined coal tar-based sealers as a human carcinogen.
- The FDA has approved coal tar for decades as a base ingredient for skin creams and shampoos that fight certain skin conditions. It is very odd that the FDA would approve coal tar to be applied to the skin and scalp **IF** it was harmful. The amount of PAHs produced by these items is also far higher than that in coal tar sealer.
- Coal tar is commonly used in medicinal products, such as dandruff shampoos, psoriasis and eczema treatments. It is also used to seal drinking water pipes as it is insoluble in water.
- There is no record that PAHs from these pavement sealers have ever caused harm to anyone. Ready-to-use pavement sealers (both refined coal tar and asphalt based) have never been cited for a claim of poor health due to the use of its sealers. **Not even the proponents of any ban or restriction can show that RTS has ever harmed anyone.**
- A focus on just RTS won't reduce the amount of PAHs. Even concrete pavements that do not require sealants **DO** collect PAHs from spills, leaks, abrasion, and atmospheric deposition which may be washed into streams during rain events.
- Studies have consistently found that traffic-related emissions, **not runoff from pavement sealed with refined coal tar-based sealer**, are the primary source of all PAHs in the urban environment.
- RTS is an FAA and DOT-required product that is used extensively on runways and bridges.
- Air sampling studies showed RTS-based sealers pose no inhalation risk to applicators, manufacturers, or the general public.

More Ridiculous Claims

True there are many sources of PAHs in the environment, but some pavement sealers represent one of the highest concentrations of any urban source.[vi]



Concerning California's Prop 65, coal tar pitch is listed as a carcinogen as well as 7 of 16 primary PAHs. [vii]

Ingredients of substances are listed as carcinogens, not the ***products*** themselves. One of the substantial ingredients of this product is "coal tar pitch," a known human carcinogen.[viii]
Both the EPA[ix] and the CDC[x] have stated the best way to deal with coal tar pavement sealers is to ban them.
Other common myths are answered at other links:

- IARC myth[xi]
- Shampoo myth[xii]
- No human harm myth[xiii]
- FAA needs coal tar myth[xiv]
- Air sampling myth[xv]

Institutions Finding Problems with Coal Tar / High PAH Pavement Products

	Institution Name	Link to Analysis/Study (Some Institutions have done several studies)
1	American Medical Association	https://www.ama-assn.org/press-center/press-releases/ama-urges-legislation-ban-dangerous-coal-tar-sealcoats
2	Asphalt Institute	https://www.asphaltinstitute.org/engineering/frequently-asked-questions/asphalt-maintenance-and-rehabilitation/
3	ASU: Appalachian State Univ.	https://www.scribd.com/document/282920702/Report-on-the-Health-of-Hodges-Creek-Follow-up-research-on-the-fish-kill-that-occurred-July-2010-in-Boone-NC
4	ATSDR: Agency for Toxic Substances & Disease Registry (part of Health and Human Services)	https://www.atsdr.cdc.gov/hac/pha/LeanderIndependentSchoolDistrict/LeanderIndependentSchoolDistrict%20HC%202-13-2008.pdf
5	Austin Independent School District	https://www.scribd.com/doc/49595982/Austin-s-School-District-Initial-Evaluation-About-Coal-Tar-Sealers-at-Schools
6	Austin: City of Austin, TX	https://pubmed.ncbi.nlm.nih.gov/16557355/
7	Australian Institute of Marine Science	https://www.researchgate.net/publication/286486840_Severe_Coal_Tar_Sealcoat_Runoff_Toxicity_to_Fish_Is_Prevented_by_Bioretention_Filtration
8	Baylor: Baylor Univ.	https://pubmed.ncbi.nlm.nih.gov/23181746/
9	Chang'an University	https://www.researchgate.net/publication/289628343_Environmental_concern_of_using_coal_tar_in_road_engineering_and_its_possible_alternatives
10	Dickinson U: Dickinson Univ.	https://www.sciencedirect.com/science/article/abs/pii/S0269749113005435
11	DuPage: DuPage River /Salt Creek Working Group, Illinois	http://www.youtube.com/watch?v=qMn9LDwWI5k&list=PL092256775CBEBD8E&index=1
12	EPA: US Environmental Protection Agency	http://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100ECC8.txt

13	ERM: Environmental Resources Management (consultant)	http://www.scribd.com/doc/49595982/AISD-PrelimEvalSummaryOfCoalTarSealers
14	European Union	http://www.umweltbundesamt.de/en/publikationen/polycyclic-aromatic-hydrocarbons
15	Federal Aviation Administration	http://www.faa.gov/documentLibrary/media/Advisory_Circular/AC_150-5370-10G.pdf
16	FSU: Florida State Univ.	https://pubs.acs.org/doi/abs/10.1021/acs.est.2c00582
17	German Federal Environment Agency	https://www.nalms.org/wp-content/uploads/2017/08/37-1-5.pdf
18	International Agency for Research on Cancer (IARC)	https://www.inchem.org/documents/iarc/vol35/coaltars.html
19	King's College (London)	https://www.researchgate.net/publication/305751258_Oral_exposure_to_commercially_available_coal_tar-based_pavement_sealcoat_induces_murine_genetic_damage_and_mutations?_tp=eyJjb250ZXh0Ijp7ImZpcnN0UGFnZSI6InB1YmxpY2F0aW9uIiwicGFnZSI6InNlYXJjaCIsInBvc2l0aW9uIjoicGFnZUhlYWRlciJ9fQ
20	Los Alamos National Laboratory	https://www.sciencedirect.com/science/article/abs/pii/S0048969715002703
21	Luleå University of Technology (Sweden)	https://www.researchgate.net/publication/353543731_Spreading_bioavailability_and_toxicity_of_polycyclic_aromatic_hydrocarbons_from_roads_with_underlying_tar_asphalt
22	Michigan Technological Univ.	https://digitalcommons.mtu.edu/cgi/viewcontent.cgi?article=1995&context=etds
23	Milwaukee Metropolitan Sanitary District	https://www.mmsd.com/about-us/news/milwaukee-legislation-would-ban-coal-tar-sealants
24	Mobil Oil Corporation Laboratory	https://www.scribd.com/doc/111324044/Mutagenicity-and-PAC-Content-of-Seal-Coatings-for-Asphalt-Pavement
25	MPCA: Minnesota Pollution Control Agency	https://www.startribune.com/storm-water-pond-cleanup-costs-to-soar-maybe-to-1-billion/178256821/?refer=y
26	MSU: Missouri State Univ.	https://bearworks.missouristate.edu/articles-cnas/204/
27	National Cancer Institute	https://www.cancer.gov/about-cancer/causes-prevention/risk/substances/coal-tar
28	National Institute for Occupational Safety and Health	https://blogs.cdc.gov/niosh-science-blog/2022/07/20/coal-tar-sealants/
29	National Institute of Water & Atmospheric Research (New Zealand)	https://www.nzta.govt.nz/assets/resources/research/reports/388/docs/388.pdf

30	NCSU: North Carolina State Univ.	https://www.austintexas.gov/sites/default/files/files/Watershed/coaltar/nyas_pah_harbor_study_final.pdf
31	NYAS: New York Academy of Sciences	https://www.austintexas.gov/sites/default/files/files/Watershed/coaltar/nyas_pah_harbor_study_final.pdf
32	Oregon State Univ.	https://today.oregonstate.edu/archives/2016/apr/coal-tar-based-sealcoats-driveways-parking-lots-far-more-toxic-suspected
33	Santa Barbara: City of Santa Barbara, CA	https://coaltarfreeusa.com/2012/05/surprising-new-info-on-california-coal-tar-sealant-use/
34	SIU: Southern Illinois University	https://www.sciencedirect.com/science/article/abs/pii/S0045653510007320
35	Texas Commission on Environmental Quality	https://youtu.be/Fb6AWwMb4zM
36	The Citadel: The Citadel Military School of South Carolina	https://www.scribd.com/document/282920702/Report-on-the-Health-of-Hodges-Creek-Follow-up-research-on-the-fish-kill-that-occurred-July-2010-in-Boone-NC
37	TSU: Texas State Univ.	https://pubmed.ncbi.nlm.nih.gov/16557355/
38	U of Lyon: Univ. of Lyon (France)	https://www.sciencedirect.com/science/article/abs/pii/S0048969715002703
39	U of NH: University of New Hampshire	https://www.unh.edu/unhtoday/news/release/2012/03/14/unh-research-adds-mounting-evidence-against-popular-pavement-sealcoat
40	U of Toronto: Univ. of Toronto (Canada)	https://tspace.library.utoronto.ca/handle/1807/63068
41	United States Geological Survey (USGS)	https://www.sciencedirect.com/science/article/abs/pii/S135223101200057X
42	Univ. of Copenhagen	https://publichealth.ku.dk/staff/?pure=en%2Fpublications%2Fa-strong-genotoxic-effect-in-mouse-skin-of-a-single-painting-of-coal-tar-in-hairless-mice-and-in-mutatm-mouse(12b27c90-74c8-11db-bee9-02004c4f4f50).html
43	University of California San Francisco	https://www.researchgate.net/publication/7222663_The_Effects_of_Coal_Tar_Based_Pavement_Sealer_on_Amphibian_Development_and_Metamorphosis?_tp=eyJjb250ZXh0Ijp7ImZpcnN0UGFnZSI6InB1YmxpY2F0aW9uIiwicGFnZSI6InNlYXJjaCIsInBvc2l0aW9uIjoicGFnZUhlYWRlciJ9fQ
44	University of Ottawa	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4979669/
45	University of Wisconsin	https://shwec.engr.wisc.edu/wp-content/uploads/sites/711/2015/08/Sealants-health-and-

		envir-11-8-12.pdf
46	Washington State University	https://pubmed.ncbi.nlm.nih.gov/26654684/

[i] Presentation to Austin City Council, November 17, 2005, https://www.youtube.com/watch?v=sgKkt2OfwWI, accessed 2/24/2024.
[ii] Ibid.
[iii] https://youtu.be/Fb6AWwMb4zM?feature=shared
[iv] New York/New Jersey Harbor Study of PAHs, New York Academy of Sciences, 2007.
[v] https://pubs.usgs.gov/publication/70127576
[vi] Presentation to Austin City Council, November 17, 2005, https://www.youtube.com/watch?v=sgKkt2OfwWI, accessed 2/24/2024.
[vii] https://oehha.ca.gov/media/downloads/proposition-65//p65chemicalslist.pdf
[viii] USGS Presentation to the City of Springfield, MO http://www.youtube.com/watch?v=kKKvNihlgMI accessed 2/24/2024.
[ix] https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100ECC8.txt
[x] https://blogs.cdc.gov/niosh-science-blog/2022/07/20/coal-tar-sealants/
[xi] https://youtu.be/sDGpVf9DI6w?feature=shared
[xii] https://coaltarfreeusa.com/2015/06/apples-oranges-and-coal-tar-shampoo/
[xiii] https://coaltarfreeusa.com/2014/04/sealant-worker-safety-myth-in-jeopardy/
[xiv] https://coaltarfreeusa.com/2015/06/when-theres-a-lot-riding-on-your-pavement-ask-the-faa/
[xv] https://coaltarfreeusa.com/2022/05/breaking-down-new-safety-study-by-feds/